

CLAIMS

We claim:

1. A method for reducing interference between two or more communication systems that share a common wireless transmission medium, the method comprising:

5 transmitting one or more messages conforming to a first communication standard associated with a first of the communication systems, wherein:

the one or more messages are designed to notify one or more nodes conforming to the first communication standard of the existence of a contention free period (CFP) for the first communication system; and

10 the CFP for the first communication system spans a CFP for a second of the communication systems conforming to a second communication standard different from the first communication standard.

2. The invention of claim 1, wherein the CFP for the first communication system spans the CFP for
15 the second communication system as well as a subsequent beacon period for the second communication system.

3. The invention of claim 1, wherein:

20 the one or more messages enable the one or more nodes conforming to the first communication standard to access the common wireless transmission medium during a contention access period (CAP) for the second communication system; and

the one or more messages disable the one or more nodes conforming to the first communication standard from accessing the common wireless transmission medium during each CFP for the second communication system.

25 4. The invention of claim 1, wherein transmitting the one or more messages comprises transmitting a first message conforming to the first communication standard to notify the one or more nodes conforming to the first communication standard of the beginning of the CFP for the first communication system.

30 5. The invention of claim 4, wherein the first message is transmitted at the end of a CAP for the second communication system.

6. The invention of claim 4, wherein the first message identifies the duration of the CFP for the first communication system.

7. The invention of claim 4, wherein transmitting the one or more message further comprises transmitting a second message conforming to the first communication standard to notify the one or more nodes conforming to the first communication standard of the end of the CFP for the first communication system.

8. The invention of claim 7, wherein the second message is transmitted at the beginning of a subsequent CAP for the second communication system.

9. The invention of claim 1, wherein:
the common wireless transmission medium is a wireless channel;
the first communication standard is IEEE 802.11; and
the second communication standard is IEEE 802.15.3.

10. The invention of claim 9, wherein the first and second messages are transmitted from a node that functions as both an IEEE 802.11 access point and an IEEE 802.15.3 piconet controller.

11. The invention of claim 1, further comprising transmitting a beacon frame for the second communication system after the end of the CFP for the second communication system.

12. The invention of claim 1, wherein the one or more messages are transmitted over the common wireless transmission medium.

13. A combined node comprising:
(a) a first transceiver conforming to a first communication standard;
(b) a second transceiver conforming to a second communication standard different from the first communication standard; and

(c) a controller adapted to coordinate operations of the first and second transceivers, wherein:
the first transceiver is part of a first communication system conforming to the first communication standard;

the second transceiver is part of a second communication system conforming to the second communication standard;

the first and second communication systems share a common wireless transmission medium;
the first transceiver is adapted to transmit one or more messages conforming to the first
communication standard, wherein:

the one or more messages are designed to notify one or more other nodes conforming to the
first communication standard of the existence of a contention free period (CFP) for the first
communication system; and

the CFP for the first communication system spans a CFP for the second communication
system.

14. The invention of claim 13, wherein the CFP for the first communication system spans the CFP
for the second communication system as well as a subsequent beacon period for the second
communication system.

15. The invention of claim 13, wherein:
the one or more messages enable the one or more nodes conforming to the first communication
standard to access the common wireless transmission medium during a contention access period (CAP)
for the second communication system; and

the one or more messages disable the one or more nodes conforming to the first communication
standard from accessing the common wireless transmission medium during each CFP for the second
communication system.

16. The invention of claim 13, wherein the first transceiver is adapted to transmit a first message
conforming to the first communication standard to notify the one or more nodes conforming to the first
communication standard of the beginning of the CFP for the first communication system.

17. The invention of claim 16, wherein the first message is transmitted at the end of a CAP for the
second communication system.

18. The invention of claim 16, wherein the first message identifies the duration of the CFP for the
first communication system.

19. The invention of claim 16, wherein the first transceiver is further adapted to transmit a second
message conforming to the first communication standard to notify the one or more nodes conforming to
the first communication standard of the end of the CFP for the first communication system.

20. The invention of claim 19, wherein the second message is transmitted at the beginning of a subsequent CAP for the second communication system.

21. The invention of claim 13, wherein:

the common wireless transmission medium is a wireless channel;
the first communication standard is IEEE 802.11; and
the second communication standard is IEEE 802.15.3.

22. The invention of claim 21, wherein:

the first transceiver functions as an IEEE 802.11 access point;
the second transceiver functions as an IEEE 802.15.3 piconet controller.

23. The invention of claim 13, wherein the second transceiver is adapted to transmit a beacon frame for the second communication system after the end of the CFP for the second communication system.

24. The invention of claim 13, wherein the one or more messages are transmitted over the common wireless transmission medium.

25. A method for reducing interference between two or more communication systems that share a common wireless transmission medium, the method comprising:

transmitting one or more messages conforming to a first communication standard associated with a first of the communication systems, wherein:

the one or more messages are designed to notify one or more nodes conforming to the first communication standard of the existence of a contention access period (CAP) for the first communication system; and

the CAP for the first communication system falls within a CAP for a second of the communication systems conforming to a second communication standard different from the first communication standard.

26. The invention of claim 25, wherein each node conforming to the first communication standard is allowed to contend for access to the common wireless transmission medium only during the CAP for the second communication standard.

27. The invention of claim 25, wherein:

the common wireless transmission medium is a wireless channel;
the first communication standard is IEEE 802.11; and
the second communication standard is IEEE 802.15.3.

5 28. A combined node comprising:

(a) a first transceiver conforming to a first communication standard;

(b) a second transceiver conforming to a second communication standard different from the first communication standard; and

(c) a controller adapted to coordinate operations of the first and second transceivers, wherein:

10 the first transceiver is part of a first communication system conforming to the first communication standard;

the second transceiver is part of a second communication system conforming to the second communication standard;

the first and second communication systems share a common wireless transmission medium;

15 the first transceiver is adapted to transmit one or more messages conforming to the first communication standard, wherein:

the one or more messages are designed to notify one or more nodes conforming to the first communication standard of the existence of a contention access period (CAP) for the first communication system; and

20 the CAP for the first communication system falls within a CAP for a second of the communication systems conforming to a second communication standard different from the first communication standard.

25 29. The invention of claim 28, wherein each node conforming to the first communication standard is allowed to contend for access to the common wireless transmission medium only during the CAP for the second communication standard.

30 30. The invention of claim 28, wherein:

the common wireless transmission medium is a wireless channel;

the first communication standard is IEEE 802.11; and

the second communication standard is IEEE 802.15.3.